

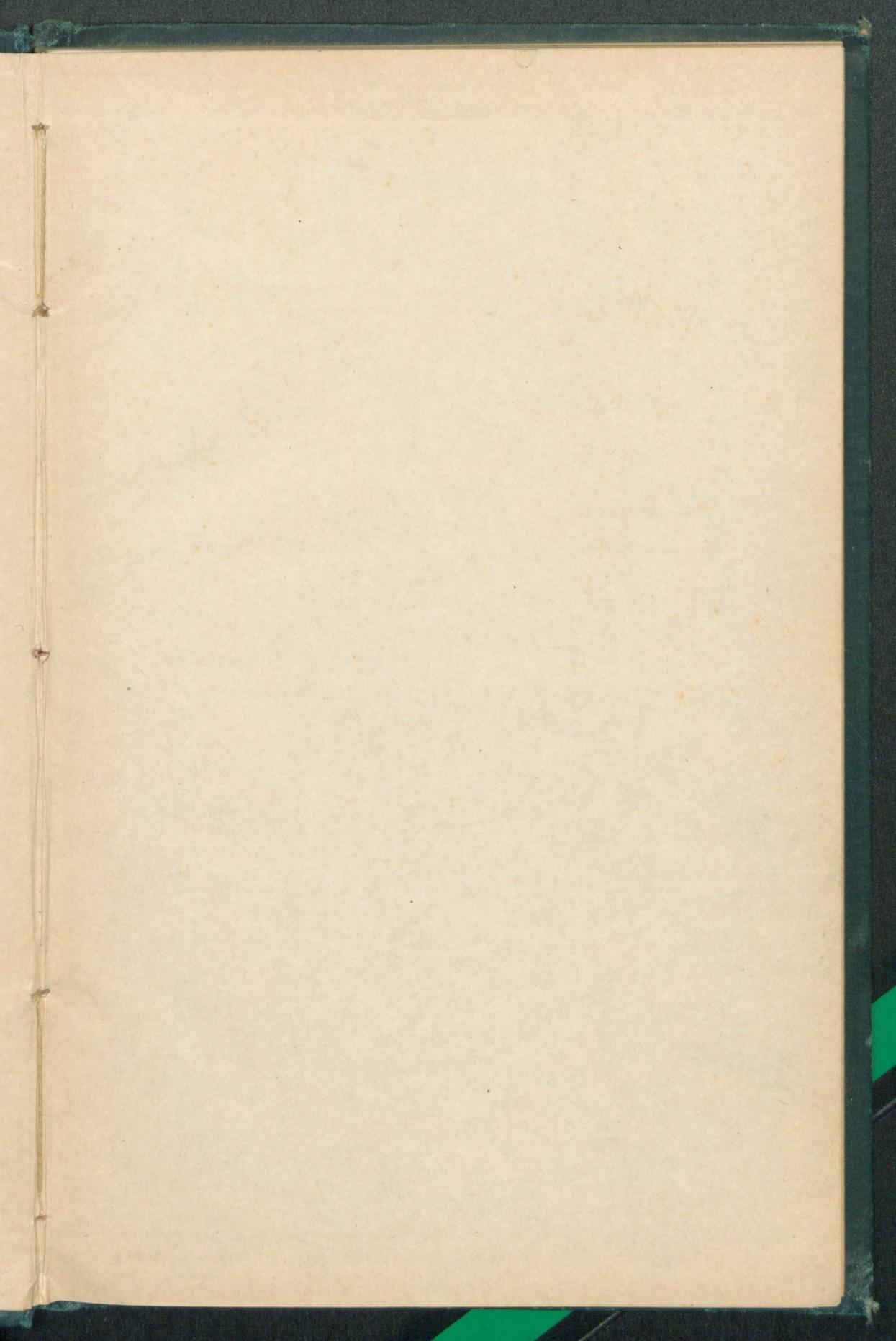
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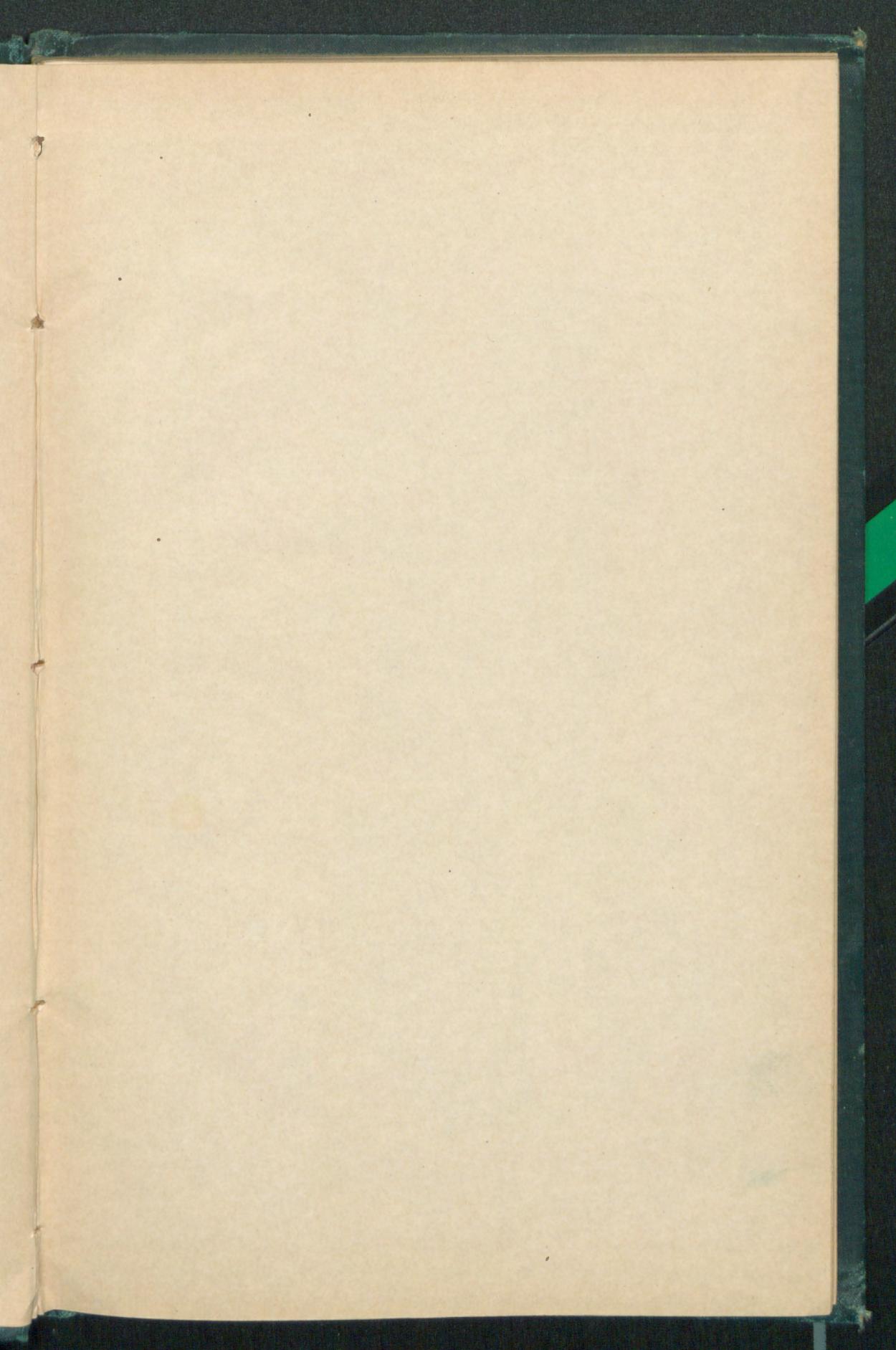
ANNUAL REPORT
MARYLAND
AGRICULTURAL COLLEGE.

1891.

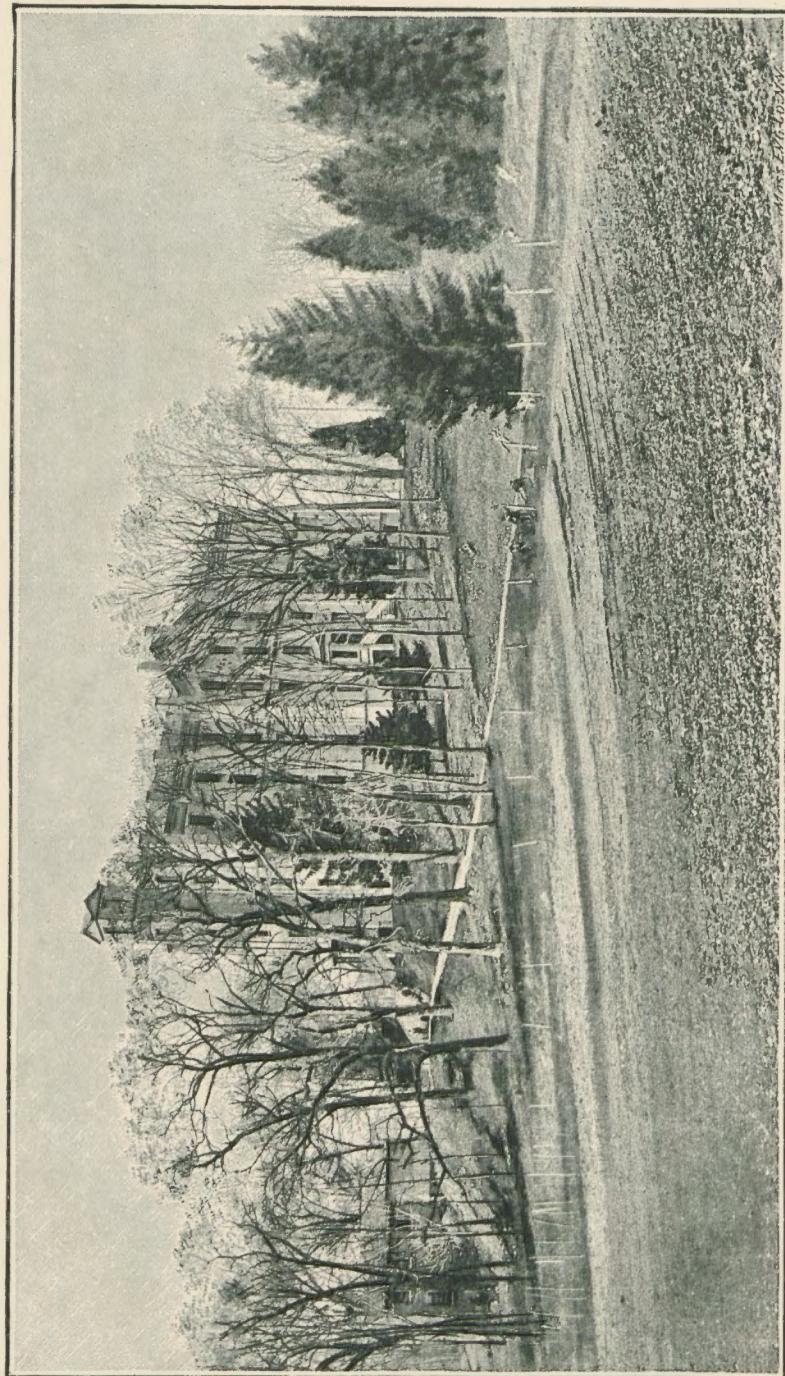
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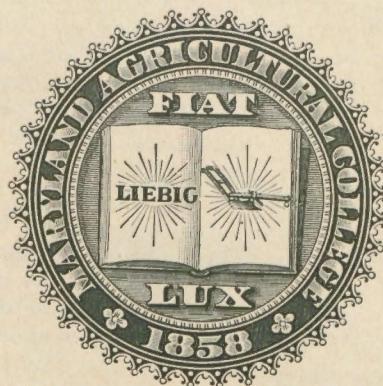
ANNUAL REPORT

OF THE

MARYLAND AGRICULTURAL COLLEGE,

FOR THE YEAR

1891.



COLLEGE PARK,

PRINCE GEORGE'S COUNTY, MARYLAND.

JANUARY, 1892.

UNIVERSITY OF MARYLAND
ANNAPOLIS:
C. H. BAUGHMAN & CO.,
STATE PRINTERS.
1892.

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(Letter of Transmittal.)

COLLEGE PARK,
PRINCE GEORGE'S COUNTY, MARYLAND,
January 16, 1892.

To His Excellency,

FRANK BROWN, Governor,

Annapolis, Md.

SIR:—Under instructions from the Board of Trustees, and on behalf of its Executive Committee, I have the honor to transmit to you herewith, for presentation to the General Assembly, the Annual Report for 1890, of the Maryland Agricultural College and Experiment Station,—as published a year ago by the institution—and the corresponding Annual Report for 1891, in manuscript. It is hoped that these reports, jointly, will be accepted as fulfilling the requirements of the law (extract below) for a "full and correct report of the condition of said Agricultural College" to every session of the State Legislature. And it is recommended that the printing and distribution of the unpublished portion be authorized by the General Assembly, that the people of the State may become better acquainted with the educational advantage offered by the College.

As Acts of Congress now require Annual Reports to the Governor and other officials, from this institution, as one of the conditions of Federal support, it is further recommended that the General Assembly should authorize the Governor to cause these publications to be regularly made, hereafter, by the State.

Very respectfully,

(Signed) GEO. R. WILLIS,
 Chairman Executive Committee.

EXTRACTS FROM THE LAWS RELATING TO REPORTS TO BE RENDERED BY
THE MARYLAND AGRICULTURAL COLLEGE.

(Maryland Laws of 1856, chapter 97, sec. 7.)

By the College Charter, the Board of Trustees is required to present to every Session of the State Legislature, a "full and correct report of the condition of the said Agricultural College and Model Farm, and the condition or final results of all experiments undertaken."

* * * * * * *

(Maryland Laws of 1865, chapter 178, sec. 1.)

This Act assigns to the Maryland Agricultural College, the benefits of the Congressional Land-Grant of 1862, and provides as follows: "and the said College shall, in all respects, comply with the several requirements of the said Act, as to making and recording experiments and reporting the same."

BOARD OF TRUSTEES.

Members Ex-Officio under State Law.

HIS EXCELLENCY E. E. JACKSON, *Governor*,

PRESIDENT OF THE BOARD.

HON. WM. PINKNEY WHYTE, *Attorney General*.

HON. L. VICTOR BAUGHMAN, *Comptroller of the Treasury*.

HON. ROBERT F. BRATTAN, *President of the Senate*.

HON. JOHN HUBNER, *Speaker of the House of Delegates*.

HON. EDWIN H. BROWN, *State Treasurer*.

Members Elected by the Stockholders.

HON. J. CARROLL WALSH, Jerusalem Mills, Harford Co.

HON. WILMOT JOHNSON, Catonsville, Baltimore Co.

CHAS. B. CALVERT, Esq., Agricultural College, P. G. Co.

ALLEN DODGE, Esq., Washington, D. C.

CHAS. H. STANLEY, Esq., Laurel, Prince George's Co.

Members by Executive Appointment.

	Term Expires.
GEORGE R. WILLIS, Esq., 213 Courtland St., Baltimore.	1892
DR. CHAS. A. WELLS, Hyattsville, Prince George's Co.	1892
COL. F. CARROLL GOLDSBOROUGH, Easton, Talbot Co.	1894
DAVID SEIBERT, Esq., Clear Spring, Washington Co.	1894
JEREMIAH P. SILVER, Esq., Glenville, Harford Co.	1896
WILLIAM T. BIEDLER, Esq., Baltimore.	1896

(Letter of Transmittal.)

MARYLAND AGRICULTURAL COLLEGE,
President's Office,
COLLEGE PARK, MD., January, 14th, 1892.

GEORGE R. WILLIS, Esq.,
Chairman of the Executive Committee,
of the Board of Trustees.

SIR:—Complying with an order of the College Board of Trustees, at its last regular meeting, I have the honor to herewith transmit to you, the Annual Report of the Maryland Agricultural College and Experiment Station, for the year 1891, as prepared by me in accordance with existing laws, extracts from which are also herewith.

This Report, and the similar one for 1890, made and published last year, together comprise "a full and correct" account of "the condition of the College" and of "the condition and final results of all experiments undertaken," during the two years which have elapsed since the Report made by the Board of Trustees to the General Assembly of 1890, and published by its authority.

Yours very respectfully,
(Signed) HENRY E. ALVORD,
President of the College.

EXTRACTS FROM THE LAWS.

Act of Congress, approved March 2, 1887, Sec. 3: "It shall be the duty of each of the said Stations, annually, on or before the first day of February, to make to the Governor of the State in which it is located, a full and detailed report of its operations."

Act of Congress, approved August 30, 1890, Sec. 3: "An annual report by the President of each of said colleges, shall be made to the Secretary of Agriculture, as well as to the Secretary of the Interior, regarding the condition and progress of each college, including statistical information in relation to its receipts and expenditures, its library, the number of students and professors, and also as to any improvements and experiments made under the direction of any experiment stations attached to said colleges, with their cost and results, and such other industrial and economical statistics as may be regarded as useful, one copy of which shall be transmitted by mail, free, to all other colleges further endowed under this Act."

ANNUAL REPORT
OF THE
Maryland Agricultural College,
FOR 1891.

The last Report of the Maryland Agricultural College was made for the calendar year 1890, in accordance with the provisions of Acts of Congress binding upon the institution, and was published and distributed by order of the Board of Trustees. The present report, prepared in conformity to the same laws, extracts of which are herewith, relates to "the condition and progress" of the College and "the operations" of the Experiment Station connected therewith, for and during the full year of 1891. The accompanying financial statements, conform to the fiscal years of the College and the Station, respectively, as elsewhere explained.

CONDITION AND PROGRESS OF THE COLLEGE, 1891.

The year has been one of substantial progress and prosperity for the College. The income of the institution is larger than ever before. The debt has been further reduced. The college buildings have been repaired and largely refurnished. The farm has been materially improved and newly equipped. Large additions have been made to the facilities for instruction, in all the departments. Salaries have been reasonably increased, to secure competent specialists for the several departments. The Faculty has been re-organized and filled, so that little change will be needed for some years to come. The course of instruction has been diversified and supplemented by lectures upon topics not regularly taught at the College. The attendance of students has considerably increased, the number in the college classes during the latter part of the year, being double the average of the last ten years. The standard of scholarship has been maintained and gradually improved. The discipline for the year has been good. The institution appears to be gaining in public confidence and favor, as

it and its work become better known. The College has extended its work to include matters relating to the material interests and general welfare of the State. The condition of the College has been thus satisfactory for the year and is full of encouragement for the future. But there is ample room for further progress and improvement, and some immediate needs are manifest and will be described.

Free Scholarships :—The system of scholarships adopted by the College Trustees was explained in the last Annual Report. These scholarships have now all been filled by the respective School Boards, excepting those for the counties of Garrett, Kent and Talbot. These three vacancies are temporarily filled by the Faculty assigning meritorious students thereto. Consequently the College is now furnishing all the facilities for education to twenty-six young men, representing the Senatorial districts of the State, at a total annual cost to each of these students, actually less than their living expenses would be at home.

Attendance of Students :—The total enrollment of students during the year has been Eighty-two (82) and a list of their names is given on pages following. This is a large increase over last year and for some years previous, as may be thus shown :

COMPARATIVE NUMBERS IN THE COLLEGE CLASSES, AT THE M. A. C.

TIME.	SENIORS.	JUNIORS.	SOPHOMORES.	FRESHMEN.	TOTAL.
Average, last 10 years. . . .	3 $\frac{1}{2}$.	6 $\frac{1}{2}$.	9 $\frac{1}{2}$.	10 $\frac{1}{2}$.	30.
Average, last 4 years. . . .	6.	9.	14.	15.	44.
Autumn of 1891.	8..	9.	21.	24.	62.

The attendance at the close of the year, is therefore double the average of the past ten years. These numbers are not yet what they should be, but they plainly indicate a steady recent growth by the College, in public favor. (Only twice in its history, has the institution had more students upon its rolls, and it is recorded that in both instances dissatisfaction was expressed, by the Board of Trustees and by the public, at the manner in which the College was then conducted and the wide departure from its original purpose and plan.)

Work of the Departments,—its Kind and Quality:—[All the students of this college are now receiving instruction in agriculture and horticulture,—in the sciences which lie at the foundation of progressive farming and gardening,—in the English language, and in the branches best calculated to make good citizens.] The entire body of students is pursuing an agricultural college course of study, arranged and conducted to compare favorably with the course of similar institutions in other States. [The Maryland Agricultural College has now more students in attendance, engaged in the studies required by its charter, and subsequent laws, to be its “leading objects,”—than ever before.]

The college is also holding its students well. The graduating class is steadily increasing. This is one of the surest evidences of the value and lasting influence of an educational institution. Should no casualties occur in the present Senior Class, the College will have graduated, in the five years ending June, 1892, more students than in any similar period in its history. More, also, than at any other Agricultural College in the Atlantic States, during the same period, with a single exception.

[The fact will bear repeating, that Maryland has more students pursuing an agricultural course at her State College, than any of the Atlantic States, except two. Further, that these students are provided with a full college course, at a less public expenditure *per capita* than is usual in nine-tenths of the Agricultural Colleges of the country and other institutions of like grade. The private cost of a course of study here is also very much below that of most colleges.]

[The reports from the several professors upon the work in their respective departments, which were a part of the published College report for 1890 are referred to, and similar statements are omitted this year.] It may be well, however, to repeat the summary of the work of the departments :

[Agriculture and Horticulture are taught theoretically and practically, one or the other being a part of the work of every week throughout the course, with constant illustrations in the class-room, museums, laboratory and stable, on the farm and at the Experiment Station. The mineral, vegetable and animal kingdoms are studied under the different professors of natural history, and this work embraces physical geography, climatology, geology, mineral-

ogy, botany, zoology (including entomology,) and comparative anatomy. Correlative lectures are given by specialists, including the elements of veterinary practice. The chemical instruction is first general, then special ; it is made very full and thorough, with abundant laboratory practice, particular attention being given to agricultural analyses. In the department of physics, the mechanical powers and the physical forces of nature are taught, with the properties of matter, sound, light, heat, electricity, magnetism and their economic applications. All the scientific departments are exceptionally well equipped with new models, illustrative apparatus and books of reference. Particular attention is given to a full and continuous course in English, that all the other instruction of the student may be made available by giving him a free and accurate command of his mother tongue, in speaking and writing ; this course embraces language lessons and literature, logic, rhetoric, and elocution. A special aim is to make the graduate acquainted with and appreciative of, the rights, privileges and duties of citizenship ; the course therefore includes general history, constitutional history, civil government and political economy. Optional courses of study are offered, in the German, French and Latin languages. In mathematics, the usual college course is taught, but with special reference to practical application ; this includes every-day calculations, computations and measurements in ordinary business and country life, and also plane surveying, dividing lands, mapping, road-making, grading, draining, water-works and the principles of building and construction. This line of work is accompanied by free-hand, geometrical and topographical drawing. In the shops which have been fitted up within the year, practical instruction can now be given to students desiring it, in the use of hand tools for working in wood or metal, at the bench, the vise, the forge or the anvil. As required by law, military drill occurs four days in the week, the weather permitting, and some theoretical instruction is given in tactics, field operations and military history.

A very gratifying testimonial to the nature and quality of the work done at this College, has lately been received from the Johns Hopkins University. The authorities of the University, after a careful examination of the kind and quantity of the instruction here given and of the competency of the instructors, have given formal notice that hereafter, any regular graduate of the College,

holding its diploma, will be accepted at the University, without examination, for such advanced courses of study as naturally follow the work of this institution.

Changes in the Faculty :—During the year, the following changes have occurred in the faculty of instruction. Prof. Milton Whitney, previously engaged as a special instructor, was elected in April to the newly created chair of Geology and Soil Physics. Dr. A. C. Wightman resigned the professorship of Zoology in June, and Prof. Edw. W. Doran, Ph. D., late State Entomologist of Tennessee, was elected to this vacancy. The duties heretofore assigned to the chair of Language and Literature, were divided at the beginning of the current collegiate year, and two professorships created instead; Prof. Alvey retains Latin and History, including Civics and Political Economy, and Prof. Thos. A. Gatch, A. M., late Principal of Frederick College, was chosen Professor of English Language and Literature. Prof. Gatch has also been assigned the duties of vice-president of the College. A list of the Faculty as at present constituted, is given on a later page, and to this is added the Special Instructors and the Lecturers on various topics, who have been employed for different periods during the year.

THE FINANCES.

The published Report of the College for the year 1890, contained the Treasurer's report for the college, to August 31st, 1890, and facts as to income and estimates extending somewhat later. The present report contains the annual exhibit of the college treasurer for the year from September 1st, 1890, to August 31st, 1891. This accords with the established fiscal year of the college and with the requirements of the latest Act of Congress affecting the finances of the institution.

It should be especially noted that the receipts of the College during the year specified, were uncommonly large, because of two annuity payments being made during this period from the United States Treasury. The first of these payments being intended for an equipment fund, there were liberal expenditures under that head. The same will be true for another year or more, because a large balance was carried forward, assigned to that purpose but to be gradually expended.

The fiscal year for the Experiment Station is regulated by that of the United States Treasury, from which its income is wholly derived and to which it is required to report. Hence the fourth annual financial statement for the Experiment Station, which is appended, is for the year ending June 30th, 1891.

The College debt has been further reduced and now amounts to just \$5000, in the form of five certificates of indebtedness, which mature in the Autumn of 1892 and of 1893. With the usual donation from the State, these remaining obligations can all be paid when they become due. The statement heretofore published of the manner in which the college debt has been reduced and re-adjusted, is given again, with additions to date.

COMPARATIVE STATEMENT OF COLLEGE DEBT.

FORM.	June 30th, 1888.	Aug. 31st, 1889.	Aug. 31st, 1890.	Dec. 31st, 1890.	Dec. 31st, 1891.
Secured; income discounted.	\$6,000 00	\$ 4,500	\$ 3,000	.....	.....
Negotiable Notes.....	5,209 38	3,200	1,800	\$ 1,500	.....
Certificates of Indebtedness.....		5,300	5,300	5,300	\$ 5,000
Open accounts.....	7,694 55	500	.....	.....	.....
Unadjusted claims.....	1,033 09	.....	.....	.....	.....
Totals	\$19,937 02	\$ 13,500	\$ 10,100	\$ 6,800	\$ 5,000

The administration of the financial affairs of the institution can be best shown by the following explanation of the different sources of income and the accompanying exhibit of the disbursements from the several funds described, during the last fiscal year reported upon. Great care has to be exercised in the application of the college funds, as, besides the bi-ennial report to the General Assembly of the State, annual reports have to be made, which are closely scrutinized by three different sets of federal officials. Further receipts from the United States depend upon the college accounts being found correct and satisfactory in detail.

〔 I. The State donation, or annual appropriation, is the general maintenance fund and may be considered as providing for the Department of Administration. Upon this exclusively, the College must rely for all additions, repairs and improvements to the buildings and grounds, for advertising, taxes, insurance and general incidental expenses, and it is the only income applicable to the payment of interest and the reduction of the debt.〕

〔 II. AND III. The income from the Land-Scrip Fund and from the United States Treasury under the new endowment, is clearly stated in the laws to be for the support of the Department of Instruction, for the salaries of professors, lecturers and instructors, and for equipment, or "to be applied only to instruction * * and to the facilities for such instruction."〕

〔 IV. The fees received under the Commercial Fertilizer Law, are for a specific purpose, to be expended in defraying the cost of chemical analyses and other duties imposed upon the college in connection with this law.〕 These receipts are actually much less than needed to make the law effective; the matter is elsewhere explained.

〔 V. The income from students and from professors or others boarding at the College, as well as the receipts from the farm, is applied to the support of the Domestic Department. Against this is charged all the household expenses, for supplies, labor, fuel, laundry, and also books and any rebates to students or special expenses on individual account. There has heretofore been a small balance in favor of the College, on this account, but the new Scholarship plan has already begun to cause a balance the other way. And with so many students paying no board, the State donation will have to be depended upon to meet the annual deficit certain to be thus created.〕

VI.〔 The Agricultural Experiment Station is wholly supported by the annual appropriation from the Treasury of the United States and is conducted within its fixed income of fifteen thousand dollars.〕 While the College and Station are mutually beneficial in various ways, neither depends upon the other for financial aid.

EXHIBIT OF THE MANNER IN WHICH THE DIFFERENT FUNDS OF THE
COLLEGE WERE APPLIED DURING THE FISCAL YEAR
ENDING AUGUST 31ST, 1891.

I.	The State Donation,—amounting to.....	\$ 6,000 00
	Applied to:	
	Debt reduction	\$3,329 00
	Interest on debt.....	389 35
	Repairs and refurbishings.....	966 84
	General expenses, board meetings, etc.....	801 21
	Farm,—cash outlay.....	204 14
	Domestic Department.....	179 50
	Incidentals.....	74 55 5,944 59
	Balance.....	\$ 55 41
II.	The Land Scrip Fund Income.....	\$ 6,142 30
	Applied to:	
	Salaries of professors, etc..	\$3,305 00
	Lecturers and special instruction.....	470 20
	General expenses, fuel, lights, etc.....	600 00
	Advertising, Insurance and Taxes.....	604 46 4,979 66
	Balance.....	\$ 1.162 64
III.	The New Morrill Act Income, (under Act of Congress of Aug. 30, '90).....	\$31,000 00
	Applied to:	
	Instruction in Agriculture, Horticulture, the Me- chanic Arts, English, and Natural, Physi- cal and Mathematical Sciences.....	\$9,341 34
	To Facilities for such instruction.....	8,989 11 18,330 45
	Balance.....	\$12,669 55
IV.	The Fertilizer Fees Income.....	\$ 1,260 00
	Applied to:	
	Work under Fertilizer Law.....	\$1,202 25
	Balance.....	\$ 57 75
V.	From students, boarders and other sources.....	\$ 6,916 88
	Applied to:	
	Domestic Department.....	\$6,616 87
	Sundry Expenses, rebates, &c.....	300 01 6,916 88
VI.	The Experiment Station Fund, from U. S. Treasury.....	\$15,000 00
	Wholly applied to agricultural experiments during the year, as defined by the law.....	15,000 00

The following is a close estimate of the entire income of the institution for the current fiscal year, ending August 31st, 1892, (including the large balance from previous year,) and is accompanied by the apportionment thereof for the different needs of the College and Station, as already made by the Board of Trustees:

ESTIMATE OF INCOME, FOR THE COLLEGE YEAR 1891-92.

I.	From the State Donation, appropriated in 1890.....	\$ 6,000
II.	“ the Land-Scrip Fund, under Act of July 2, 1862.....	6,200
III.	“ the United States, under Act of Aug. 30, 1890.....	17,000
IV.	“ fees under the State Fertilizer Law.....	1,300
V.	“ students and others, for board, etc.....	6,500
	Add balance from last year (see Treasurer's Report).....	13,945
		—
	Total available for the College proper.....	\$50,945
VI.	From the U. S. under “the Hatch Act” of 1887.....	15,000
		—
	Aggregate income.....	\$65,945
		—

APPORTIONMENT BY THE TRUSTEES,—FOR THE SAME YEAR.

I.	For Interest and Reduction of Debt.....	\$2,000
“	Repairs and refurnishings.....	2,000
“	Advertising, Insurance, Taxes, etc.....	500
“	General Expenses, including Board meetings.....	1,000
“	Aid of the College Farm.....	500
		— \$ 6,000
II.	For ten (10) College Salaries.....	\$13,550
“	Instruction in Mechanic Arts.....	1,200
III.	For other Special Instruction and Lectures	1,500
“	Registrar and Treasurer	900
“	Books, Equipment and other “facilities for instruction”...	9,450
“	Expenses of the Eastern Branch.....	3,400
		— 30,000
IV.	For Fertilizer supervision expenses.....	1,300
V.	For the Domestic Department.....	6,500
		—
	Total for the College.....	\$48,800
	Unapportioned	7,145
VI.	For the Agricultural Experiment Station.....	15,000
		—
	Aggregate	\$65,945
		—

The College and the State Treasury :—Under appropriations made by the General Assembly, this College has received \$6000 per year for the years 1888, '89, '90 and '91, or a total of \$24,000. This has been applied as follows: For principal and interest of the debt, \$16,580.37; for necessary repairs and improvements, \$7,419.13; total, \$23,999.50. It is thus seen, that with the exception of providing for the debt (which constituted a lien on the State property) and keeping in order the buildings (which are State property, in part,) the State has been at no expense on account of this College, during the time specified. Not a dollar of State money has been used in the support and development of the College, for four years and more. Even the items of taxes and insurance on this State property, and the advertising of the institution, these amounting to about \$1500 during this period, have been paid without drawing upon State funds.

It is possible for this relation to continue. The current expenses of the College are now so well provided for, that if the State will pay the remaining debt, as it matures, and maintain and improve the real estate for the institution, nothing more need be asked for years to come.

In short, the situation is such, financially, that Maryland can have a first-class Agricultural College, offering all its advantages free to the youth of the State, if a suitable home for the institution is provided. Can there be any doubt as to what the State should do, and will do?

COLLEGE BUILDINGS.

Within a few months the sum appropriated for repairs for the current college year, has been expended, making a total of over seven thousand dollars during the last four years. This sum has been applied to repairs, improvements and refurnishings for the group of college buildings proper. Most of it has been on the main college building, erected in the years 1858-59. The work has comprised partial re-roofing, painting, some new wood-work and improvements in the water-supply, drainage, heating and ventilation of the building. The class-rooms, domestic department and students' rooms, have been largely refurnished. This work and expenditure has been demanded by comfort as well as appearances. The necessity for it has arisen from ordinary wear and

tear, the lapse of time, and by hard usage to which such buildings are commonly subjected. The main building is now in comparatively good condition, although more work will soon be needed, in replacing floors and steps actually wearing out, in other wood-work and interior painting. It will require from three to five thousand dollars to make this building as good as new and complete the re-furnishing. But even when this is done the needs of the College will not be supplied.

It must be remembered that the original plan for the College was never carried out. [What now constitutes the main building was only intended as a wing. The central structure to contain offices, class-rooms, laboratories, library, museum and assembly hall, has never been erected.] With the repairs and renovation completed, the present building will provide reasonably good accommodations for about half the public wants of the College, in this particular, for a good many years to come. The rooms for students, for offices and for class instruction in language, literature, mathematics, drawing and some other branches, will do as well as they did thirty years ago.

[But the methods of science teaching have entirely changed within a generation, and the College buildings, never intended for such purposes, are now wholly unsuited to the work of the institution, in this direction.] In order to teach the several branches of natural and physical science by approved and progressive methods, these departments of instruction require not only elaborate and expensive equipment, but ample accommodations in buildings specially fitted for them. The rooms should be well lighted, ventilated and drained, and supplied with gas, water, steam and electricity.

[The College needs one substantial new building, to be erected something after the original plan, as a Science Hall, to suitably accommodate the departments of chemistry, physics, geology, botany and zoology with lecture-rooms and laboratories. A large assembly-room, for general lectures and public occasions, should also be included.] The Congress of the United States has now generously provided for supporting instruction in these important sciences and for supplying the many and costly facilities for such instruction, buildings alone excepted. Is it too much to ask the General Assembly of Maryland to provide the buildings needed]

and thus make these liberal grants to the State College not only available but effective?

Attention is again called to the unsuitable and expensive means now depended upon for heating and lighting the buildings. There are three separate steam boilers, besides several independent fires in stoves. All these require an expenditure of fuel and labor quite beyond the results obtained. Moreover, the boilers are in the basements of inhabited buildings and cause anxiety and risk of injury to persons and property. All the buildings are lighted by coal-oil lamps, making the danger from fire imminent; during the last three months there have been several lamp explosions, with narrow escapes from serious results.

A central steam and electric plant, for the whole establishment, with a single fire, safely located and connected with the existing system of pipes, would be a very great improvement. The conformation of the college grounds and arrangement of buildings, favors such a plan. It would involve a considerable expenditure for the plant, but the safety and economy which would result are very evident.

It became apparent during the past year that some addition must be made to the accommodations for the chemical department,—which are very inadequate to its needs for instruction alone,—or else the important public work done for the farmers of the State in the analysis of commercial fertilizers, would have to be abandoned while the college was in session. Accordingly, the Trustees have authorized the erection of an addition to the building used for a chemical laboratory, and the frame has been already put up, on a good foundation, roofed and closed in. The work, thus far, can be paid for from the meagre fees received under the State Fertilizer Law, but it is difficult to see how the building can be properly completed, without special legislative aid. A grant should be made for this specific purpose, or else the Fertilizer Law should be so amended as to cause it to yield a revenue sufficient for thoroughly enforcing it and carrying out its aims. When this new building is done, the purpose is to make it a special Commercial Fertilizer Laboratory, and the headquarters for all the duties devolving upon the College under the State Fertilizer Law.

For other details as to buildings and grounds, reference is made to pages 8 to 11 of the Biennial Report of the College, made to the General Assembly of 1890.

THE COLLEGE FARM.

The farm of an agricultural college, is always an object of interest and generally of criticism. There are numerous theories, differing widely, as to its true object and the way in which it should be managed. The principles upon which such a farm is conducted, should be known, so that the purposes in that particular case may be understood, before judgment is passed upon it.

When the farm of this College came under its present management, in the Spring of 1888, certain conditions were found to exist, which do not affect the average farmer in the conduct of land owned or leased by him, but which in this case limited the policy to be adopted, in several important particulars.

This College Farm has been for the last four years subjected to the following conditions:

1st. Although nominally 286 acres in area, there is actually much more waste land than in the ordinary farm. Buildings, lawns, campus, walks, driveways and groves, besides unproductive bottoms and woodlands, embrace about one-half of the entire area. What may properly be called arable land, (present and prospective) does not exceed 155 acres in extent, and this includes 25 acres in permanent pasture and bearing orchards.]

2d. For the proper conduct of the Experiment Station, this department of the institution must be allowed the first choice of such land as it requires, with the privilege of changing areas occasionally, to secure variety of soil or for other reasons. The compensation to the college farm is that the areas used for experiment are generally (not always) well cared for and likely, if relinquished, to be found in better condition than when taken. In fact, the Station has assigned to it, for purposes exclusively experimental, including orchards and gardens, just about 35 acres, two-thirds of this being the very best land, naturally, upon the college estate.

3d. There remains for what may be considered the College Farm, proper, 95 acres of tillable land, besides pasture and or-

chard lot. The very first requirement of this farm, is to furnish illustrative material for the instructors in agriculture and horticulture. It is the laboratory and apparatus for these departments of instruction. Although not naturally a wheat farm, this grain should be grown and harvested here annually, to "facilitate instruction," even if poor crops are the result. Even flax, roots and tobacco may properly be grown for the same reason, although at an absolute annual loss. There is no sheep farm in the neighborhood; a few sheep should be kept here for purposes of illustration, whether or not they can be profitably handled. Those parts of the farm,—not all of it,—which are treated in this way, the main object being instruction by object lessons, "cost more than they come to," in one sense, but so does the chemical laboratory and the physical lecture-room. It is in just such points as these that the college farm differs from the "practical" farm.

4th. As in all such cases, the men and teams of the farm are frequently, and often unexpectedly, called upon to do work for the college. The latter has not sufficiently continuous employment to keep a force for this purpose, and as special help, when needed, cannot be had in this vicinity,—the farm outfit must supply it. Even although the farm is credited with such service, the interruption and delays caused to farming operations are serious disadvantages.

5th. The condition of neglect and dilapidation, mismanagement and exhaustion, in which the farm was found, four years ago, necessitated an effort to bring it into an orderly and reasonably creditable form, becoming a piece of State property, as speedily as possible, subject to the prior claims upon it, as already stated. With buildings wholly inadequate for such a farm,—with no manure, and little stock to make it,—with a poor equipment,—without fencing or sufficient drainage,—and with no money available or in sight, for needed improvements,—but one line of policy was possible. Time had to be depended upon, with slowly developing, self-created resources, to bring the farm into a systematized and presentable condition, before profitable crop production could be expected.

The farm of the Maryland Agricultural College has been thus handicapped in its management for the last four years. Under

such unfavorable circumstances, few persons would have been willing to contract in the Spring of 1888, to make this farm self-supporting,—much less to make it show a profit,—for some years to come. Now let the record of the four years be seen.

First, however, it should be remembered that during this period not a dollar of State funds has been applied to the benefit of the farm. And during most of this time,—until within a very few months,—all funds received from the Federal government, for the college, were under specific conditions, which prevented their application to the farm. Of course the Experiment Station income is excepted; that must be expended strictly for investigation or experiment, and very little experience is needed to understand that experimental farming is quite the reverse of "practical" or productive farming, in its pecuniary results. Lately, the new income of the college, which provides means for "facilities for instruction," has been construed to allow expenditures for stock, machinery, implements and materials for the farm, as a department of instruction. This will, in the future, prove of great assistance. But no funds are yet available for fencing, draining and the much-needed farm buildings.

The Treasurer's books include a carefully kept Farm Account and part of the facts following, taken from this record, have been already published in the college reports. On the next page is a consolidated summary of the Farm Account, for the years stated. As the books are closed annually the last of August, the figures for 1888 represent but a portion of the agricultural year.

The statement needs some explanation. The first totals given, represent the face of the ledger account. These would indicate a deficit of \$601.45 for the four years. But this account is only a part of the general college ledger, dealing almost exclusively with cash transactions, and intended only to represent the farm so far as it affects the college treasury. The question of loss or gain on a farm, however, involves something more than the record of outlay and income. A farm inventory must be made and compared, year with year, to give further evidence of the result of each year's operations. This has been done above; the inventories are of farm products only, and were made at the beginning and end of the period under consideration, as shown by the dates. The items of

STATEMENT OF THE FARM ACCOUNT M. A. C. FOR FOUR YEARS.

Dr.			Cr.		
Year.	Expenses.	Amount.	Year.	Receipts.	Amount.
1888.	Total.....	\$ 531 53	1888.	Products	\$ 337 02
1889.	"	1,093 11	1889.	Products.....	1,004 10
			"	Earnings	91 00
1890.	"	1,100 27	1890.	Products.....	787 48
			"	Earnings	108 00
1891.	"	1,450 87	1891.	Products.....	1,126 73
			"	Earnings	120 00
	Totals.....	\$ 4,175 87		Totals.....	\$3,574 33
Apr. '88.	Partial inventory,		Dec. '91.	Partial inventory,	
	Products only.....	50 00		Products only ...	987 00
	Add to this :	\$ 4,225 78		Add to this :	\$4,561 33
Apr. '88.	Valuation of Land.	4,800 00	Dec. '91.	Valuation of Land.	6,000 00
	Aggregate.....	\$ 9,025 78		Aggregate.....	\$10,561 33

these inventories are on record at the college; there was next to nothing on hand in April, 1888, in the way of farm products, but the year 1891 closes with a satisfactory accumulation of beef, pork, provender, grain and vegetables. This addition to the tabular statement, shows that the College Farm has more than supported itself during these four years; the excess of credits amounts to \$335.55. This would be much increased, if the inventories were completed to contain all farm stock and implements. Ordinarily this should be done, but the farm equipment of this character was very meagre in 1888, and the additions which have mostly been made within a very short time, are pur-

chases from the general equipment fund, and as the Farm account has not yet been debited with them, they should not be included in the credit inventory. There is another and important item for which the Farm is entitled to credit on the account; that is the improvement of the land, in condition and productiveness. Individual judgment must be relied upon to reduce this item to figures. The opinions of a number of good judges of farming lands, who have known the College Farm and seen it frequently for years, have been obtained. They place the rate of improvement since 1887, variously at twenty to one hundred per cent. A majority regard the farm as "worth at least half as much again as it was four years ago." In order to be conservative, an estimate has been used, which was given by the official committee of a prominent State agricultural organization, which committee has visited the farm every few months for several years; this places the valuation of the farming land, 120 acres, at 25 per cent. more in December, 1891, than in April, 1888. As seen by the foregoing table, this causes the Farm account to show a profit of \$1,535.55 in four years, or \$384 per year. With an average annual investment not much exceeding \$6,000, the gain is at a rate somewhat more than six per cent. per annum. Upon this financial record, the management of the farm of this College is content to rest, considering all the circumstances.

Among the items of "products" credited in the foregoing statement are the following, supplied to the Domestic Department of the College from its Farm, during the time mentioned:—

4,820 lbs. dressed beef.	800 bus. potatoes.
8,500 " " pork.	8,000 hds. cabbage.
160 " " veal.	120 doz. cans tomatoes.
5,340 gals. milk.	650 qts. strawberries.
180 lbs. of butter.	Sundry vegetables, etc., worth \$413.

The item of "earnings" in the statement refers to credits to the farm for the labor of men and teams in moving passengers, baggage and freight for the college, hauling coal, etc.

As already stated, means are now available for renewing and completing the movable equipment of the farm, and this work is in progress. As the purchases lately made have been from the

general equipment fund of the College, they have not yet been charged to the Farm, nor are the articles included in its last inventory. Very soon, the farm will have an almost entirely new outfit of stock, tools and machinery. The agricultural machinery and implements procured are only such as can be profitably used on this farm, but they are of the most improved patterns, and suitable for class instruction. The stables (or sheds) now contain horses and mules sufficient for current needs, and typical animals of several pure breeds of cattle, including Herefords, Shorthorns, Ayrshires, Guernseys and Jerseys. A pair of Holstein-Friesian heifers are soon to be added. There are also a few sheep and swine, illustrative of some of the improved breeds. Surplus stock is sold to farmers of the State, for breeding purposes, accompanied by certified pedigrees, at very low prices for such animals.

The College Farm is very deficient in stabling and shed room. The old farm buildings of the Rossburg estate, which were commodious and sufficient in their day, were destroyed by fire in February, 1865. These have never been replaced, and the only substitute has been the construction of cheap and temporary buildings from time to time. There are no such accommodations as ought to be provided on every well regulated farm, and certainly upon one owned by the State, for the proper shelter of its live stock, tools, and products.

Student Labor on the Farm:—Owing to absence at college vacations and their close occupation with study during sessions, it is impracticable to employ students on the farm for any of the regular operations requiring several hours every day. But the students of the college are frequently employed for such special duties as the time at their disposal permits them to perform. For this labor small wages are paid, usually at a fixed rate per hour, according to the nature of the work. During the past year twenty-four different students have performed more or less manual labor in the garden, fields and stables, and the payments for this service have amounted to eight hundred and eight dollars. This is independent of labor incidental to class instruction, for which no payment is made.

THE EASTERN BRANCH OF THE COLLEGE.

The arrangements made by contract with an existing and suitable institution in Somerset County, for providing educational

facilities of "like character" to those of the parent College, for the colored youth of the State, were fully described in the last Annual Report.

〔The attendance at Princess Anne has not yet perceptibly increased by reason of the additional facilities there provided for instruction in agriculture and mechanic arts, and the College authorities have no evidence, by correspondence or otherwise, that there is a demand for this class of instruction among the colored people of the State. But the work of the Eastern Branch has been well organized and officered during the year and a pretty good equipment has been procured, which will be improved from time to time. The institution is admirably managed, is doing most creditable work and promises to be the foundation for great practical usefulness in the future. The Annual Report of the Principal is appended and attention invited to it, for detailed information.

〔The weakest point in the Branch, as an educational establishment, is the irregular and transient attendance of the pupils. The sessions occupy thirty-six weeks in the year, but the average attendance of the males, during 1891, has been only 20 weeks, and of the females, only 18 weeks. The pupils are thus present for instruction but little more than half the time. Several of those enrolled were present less than two months. Only twelve of the males and only two of the females were in attendance throughout the sessions of the year. This is mainly due to the fact that nearly all the pupils are dependent upon their own resources, and although the cost of living is kept remarkably low, and the school fees equally so, most of the pupils are compelled to leave before the close of the year, to earn the means to enable them to return for further instruction. If State aid could be granted, sufficient to pay pupils moderately for work actually performed in the several branches of industry, it would enable a good many to remain uninterruptedly under instruction, who cannot do so now. The most pressing need of the Branch is, therefore, something in the nature of a scholarship, aid or labor fund, or annuity.〕

〔The institution is also greatly in need of additional buildings. Beginning but a few years ago with a single dwelling house of moderate size, the accommodations have been gradually increased

in a manner most creditable to all concerned. The school-rooms proper and the male dormitories, answer present demands, although likely to be soon over-crowded. But a good industrial building is needed at once, to accommodate shops and storage for the departments of smithing, wheel-wrighting, carpentry, painting, shoe-making and tailoring, besides shed-room for brick-making and masonry. The female department should have a building for its entire use, as study-rooms, dormitories and quarters for instruction in the domestic arts. The progress and usefulness of this school will be greatly retarded until these two necessary buildings can be provided.]

The Eastern Branch is in practically the same condition as to resources and limitations on the expenditure of its funds, as the College proper. The aid received through the College, from the Federal treasury, provides for all present requirements for instruction and the facilities for instruction. Morgan College contributes to the general expenses of administration. But for scholarship funds and additional buildings, some other source must be depended upon, and this seems to be a proper subject for State aid.

The contract with Morgan College, by which this Eastern Branch is maintained, has been renewed until April, 1892, pending the action of the General Assembly of the State.

THE EXPERIMENT STATION.

Little else can be said under this heading than that which has been stated in preceding College reports. Organized in accordance with the law creating it, as a Department of the College,—located upon the College estate, governed by the same Board of Trustees and under the same executive officer,—the Experiment Station has its specially assigned land and buildings and its own equipment, as well as its special income, and thus maintains an almost independent existence.

The province of the Agricultural Experiment Station is clearly defined by the law creating it. Differing essentially from the College proper, whose special function is to teach what is known, the business of the Station is to deal with the unknown, in agriculture,—to investigate and endeavor to determine the truth as to

some of the many vexed questions which are constantly met in farming. It is not to be a "Model Farm," as contemplated by the original College charter,—nor yet a "practical" farm, conducted for financial profit,—and while it incidentally grows grass and grain, and produces vegetables and fruits, milk and meat, the one crop to which it specially aims, is *information*,—or, as called for by the law,—"useful and practical information on subjects connected with agriculture."

While the Station is constantly and increasingly useful to the College and its students, in affording object lessons and illustrating both the theory and practice, its legitimate pupilage is comprised of the adult farmers and gardeners of the State. The Station endeavors to reach the latter, by participation in public meetings and agricultural exhibitions and through its frequent publication and distribution of Bulletins and Reports.

Three Annual Reports have now been published and widely distributed by mail, beginning with 1888. Twenty Bulletins, regular and special, have also been issued, although the later numbers of these have not yet been generally distributed. The Fourth Annual Report of the Station is submitted herewith and records the operations of the year 1891. The present organization of the Station and the financial statement already mentioned, will be found in connection with the Report. Reference is made to these for all matters of detail, but attention is especially invited to the work on the examination and study of Maryland soils, and the experiments with tobacco, which have been instituted within the year.

EXTENSION OF THE COLLEGE WORK.

The original charter, granted in 1856, declared its purpose to be the establishment of an Agricultural College, "in which the student may especially be instructed in those arts and sciences indispensable to successful agricultural pursuits." Later laws, under which the College receives much the greater part of its income, and which have been either enacted by the State or assented to by it, broaden the scope of the institution and make it not only possible but even mandatory for the College to extend its work beyond its class-rooms, laboratories and farm, and in various ways

endeavor to advance the material welfare of the farming interests of the State, if not other industries of the people.

The Board of Trustees has recognized this broader field and adopted a policy in accord with it. The most important matters of this character in which the College has lately participated, are the Commercial Fertilizer Inspection, the preparation of a Geological and Soil-Map of Maryland, the establishment of a State Weather Service and the holding of "Farmers' Institutes" in different parts of the State. None of this work could have been undertaken unaided, but the College has found willing and efficient co-operation, as will be presently explained.

The State Fertilizer Law:—The duty of inspecting commercial fertilizers sold in the State, and periodically publishing the result of the examinations made, devolves upon the College under Chapter 387 of the Acts of the General Assembly of 1890. It was supposed that the law provided, through a system of license fees, the necessary means for carrying out its objects. The revenue has, however, proved to be quite inadequate for the work, and in order to perform its duties the College has been compelled to resort to methods which are inexpedient and detrimental to its other interests. There are three grave faults in the existing law:—1st, the fees are not half large enough for its proper support; 2nd, it does not make effective provision for its own enforcement; 3rd, the law has such weak points that it could not be enforced in any court. By some unaccountable error, there were such omissions made in engrossing the act as passed by the General Assembly (and correctly printed for its use) as to render the whole law of no effect, and it has only been by courtesy that many reputable manufacturers and dealers have conformed to its provisions during the last two years. A large number have entirely ignored the law, knowing full well that its penalties could not be enforced. The College has endeavored to perform its duties, under these most embarrassing conditions, being satisfied that the work was of importance to the farmers of the State, and well appreciated by them. The effort to provide better accommodations for this work has already been described. This subject should be brought to the attention of the General Assembly of 1892, in order that the vital defects in the present law may be corrected, and something done to increase

the revenue, or otherwise provide for fully executing the law and furnishing the laboratory and facilities necessary for the work.

Map of Maryland :—For a long time it has been regarded as a manifest duty on the part of this College to make a systematic study of the soils of Maryland, in their great variety and give thorough instruction on this subject. Knowledge of the soils, their origin, changes, conditions and needs, veritably lies at the foundation of agricultural progress in this State. A reliable Soil Map of the State would be of great interest and value, and the College authorities intend, in time, to complete such a map, and late in 1890 entered upon the work. It became apparent at the outset, that the soils of Maryland are so closely related to its geology, that a Geological Map must be first prepared. No complete geological survey of the State has ever been made, but it was found upon investigation that reliable data was available, of a good deal of more or less disjointed work in this field. The Johns Hopkins University and the United States Geological Survey, acting together and separately, have covered large ares of the State in their geological surveys. Both these powerful institutions cordially consented to co-operate with this College in making a Geological Map of Maryland; an officer of the College has given a large part of his time to this subject during the year, and the work has been well advanced. All data that could be obtained and verified, has been arranged and connected, but it appears that considerable field work, or actual surveying, remains to be done. The College can do little in this line, but the University and the Government Survey are pushing this work, and filling the gaps which have existed. A geological map, however, must have as a base, a full topographical map of the territory involved. Hence a Topographical Map of Maryland is incidentally required in this work. Here also, the efficient aid of the U. S. Geological Survey has been secured, as well as that of the U. S. Coast and Geodetic Survey, which has done much work on Maryland waters and their shores. It is found that so much has already been done in this field, as to make it altogether probable that a map of the State, showing its complete topographical features, can be completed during the year 1892. Some special exertion and aid will be necessary to accomplish this, but it is believed that such help can be secured.

Only one State in the Union has yet published such a map; that was the work of a State Commission in office for several years, and expending thousands of dollars, besides the help given by the general government.

The Johns Hopkins University, the U. S. Geological Survey and this College, acting in co-operation, have already made good progress upon a most accurate Geographical and Topographical Map of Maryland. It is drawn on a scale of five miles to the inch, which is sufficient to give much detail. Several hundred dollars have now been expended and the map is complete in its outlines, with all water-courses, county lines and the location of railroads and of the principal cities, towns and villages. In this condition, the map could be easily reproduced, reduced to a scale of eight miles to the inch; this would make a sheet 18 by 32 inches in size. A photographic copy of the map, of this size, in its present form, is appended to this report. It is suggested that the General Assembly might authorize its publication and distribution, with this report. This addition would certainly prove acceptable to the people of the State.

The intention of those co-operating in the preparation of this map, is to next add the county roads, and contour lines showing elevations, as soon as the necessary field work is done. It was in the direct interest of this work that the Scientific Expedition was made last Spring, along the shores of Chesapeake Bay and the Patuxent and Potomac rivers, as mentioned in the Report of the Experiment Station. The same is true of the Soil Investigations now being conducted at the Clifton estate, as also described in the accompanying Station Report. The map will eventually serve as a complete base, upon which can be charted, in colors or otherwise, the geology, soils, climatic features and other data relating to the State. The map will thus be of frequent use in the future work of the University, the Weather Service and this College. It is thought that it can also be used to advantage in connection with any State exhibit made by Maryland at the Columbian Exposition.

State Weather Service—Through co-operation between the Weather Bureau of the U. S. Department of Agriculture, the Johns Hopkins University and this College, a creditable beginning

has been made in the organization and operation of a Weather and Crop Reporting Service to include the States of Maryland and Delaware. The weekly bulletins and monthly reports which have been published in Baltimore and thence distributed, show what has been already done and the more important work which it is hoped to hereafter accomplish. The agencies now enlisted in this work are doing all that can be expected of them. If the State would lend its aid, to the extent of bearing the cost of the publications, a part of the office expenses and perhaps some additional telegraphic assistance, a State Weather Service could be developed, upon the foundation now laid, which would be the equal of any other State and prove of constant practical use and value to the agricultural and commercial interests of Maryland.

Farmers' Institutes:—As noted in previous reports, the officers of this College and the Experiment Station have frequently, since the establishment of the latter, assisted in arranging for and conducting public meetings for the discussion of agricultural subjects, in various parts of the State. These meetings have generally aroused public interest, been well attended and are believed to be productive of good to the farming interests. During the early part of the past year this work was continued, especially in co-operation with the Maryland State Grange and a series of "Farmers' Institutes" was held in four different counties. In several States these "institutes" have come to be so much desired and esteemed in the farming communities that they have been regularly organized and maintained at public expense. They promise to be equally popular and useful in Maryland and the College will continue to assist in this work as much as possible. Here, as in other matters, the officials of Johns Hopkins University have heartily co-operated, recognizing the farmers' institute as appropriately included in the new system of "university extension."

ACKNOWLEDGMENTS.

Johns Hopkins University:—The cordial, effective and very material assistance which this College has received from the Johns Hopkins University deserves especial acknowledgment. The president and professors have been interested and active in co-

operating wherever the material interests of the State are concerned, and the trustees of the University have been most liberal in granting exceptional privileges and facilities to the workers and the work of the College and Experiment Station. A further statement regarding this valuable assistance will be found in the portion of the Station Report relating to the Investigation of Agricultural Soils now in progress with its headquarters at the Clifton estate of the University, in Baltimore.

Gifts of Books:—The College is indebted to Senator Gorman and to Congressmen Compton, Rusk, Stockbridge and Stump, for donations of valuable public documents. Senator Gorman has sent during the year one hundred and fifty volumes, which had been handsomely bound for his private use. These gentlemen have also kindly given copies of the recent government work on The Horse, sufficient to furnish one to every member of the upper classes of the College. And by the special favor of the Honorable Secretary of Agriculture, advanced copies of this very valuable book were sent to the graduating class of 1891.

PUBLIC INTEREST IN THE COLLEGE.

Attention was called, in the last Annual Report, to the numerous evidences of increasing public interest in this institution during the last few years and appreciation of its value as an auxilliary to the farming interests of the State. This fact is shown by the largely increased correspondence, the visits of individual farmers and others to the College and the action of various agricultural organizations. The State Farmers' Association, the State Grange and the State Farmers' Alliance, have each established standing committees, to visit the institution, inspect and criticize its work and progress and report to their respective organizations. These committees, and others from farmers' clubs, local granges, alliances and other bodies, now frequently visit the College and Station. The reports of some of these committees have been published and in all cases they exhibit aroused interest, approval of the work and cordial support. One which is a fair example of the rest says: "The Institution is admirably officered and is doing good work for our cause; it ought to have the hearty co-operation of the whole farming community." A general sentiment expressed

by visitors is that of surprise at the condition of the College, its favorable appearance and the extent, completeness and high quality of its equipment and the facilities at hand for its work.

Established and maintained as a State Institution,—for “the people;”—with its benefits free to all, and intended to be popular,—the educational department at the College must depend largely for its usefulness upon public interest and patronage. Anything should be welcomed, therefore, which tends to make its work better known to the people of the State and to enlist their support. It is recommended that the General Assembly be asked to authorize the publication of this Report, together with that of the Experiment Station, appended, and to provide for the general distribution of the same throughout the State.

RECOMMENDATIONS.

Incorporated in the foregoing report, are several recommendations, which are now summarized as follows:—

1. That this Annual Report of the College and Experiment Station, when presented to the General Assembly, be published by its authority.
2. That special authority be given by the General Assembly for the publication of the map of Maryland herein described, for general distribution with this report, and also for the use of the State Weather Service and other purposes for the benefit of the State.
3. That provision be made by the General Assembly for the publications of this institution required by law, during the years 1892 and 1893.
4. That the Commercial Fertilizer Law be amended and the revenue for its support be increased, including provisions for completing the special Fertilizer Laboratory at the College.
5. That the annual appropriation to the College be made, in order to keep faith with the Federal government and provide for the necessities of the institution for which its other income is not legally applicable.
6. That the General Assembly be requested to authorize its appropriate committees to visit the Agricultural College and its Eastern Branch for the purpose of enquiring into the management

and progress of the institution, ascertaining its condition and needs, and making recommendations for such legislation for its improvement as may seem to be expedient.]

Upon the following pages will be found not only the matters already noted as appended but other information relating to the College, to which particular attention is invited.

Very respectfully submitted,

HENRY E. ALVORD,

January, 1892.

President of the College.

REPORT OF THE COLLEGE TREASURER.

From September 1st, 1890, to August 31st, 1891,—inclusive.

Jos. R. OWENS, *Treasurer*, in account with THE MARYLAND AGRICULTURAL COLLEGE.

DR.	SOURCES OF RECEIPTS.	LEDGER PAGE.	AMOUNTS.	NATURE OF EXPENSES.	LEDGER PAGE.	CR.
Balance of cash, from J. D. Hird, Tr. pro tem.	49	\$ 47 51		Old accounts, reduction of debt.....	38	\$ 3,329 00
State Donation of 1890-91.....	47	6,000 00		Interest on debt	20	389 35
Income on Land-scrip Fund.....	45	6,142 30		Repairs and furnishings	11	966 84
From U. S. Treasury, under Act of 1890.....	46	31,000 00		Advertising, Taxes and Insurance.....	9	604 46
Fees under Fertilizer Law.....	48	1,260 00		Gen'l expenses, board meetings, fuel, janitor, &c	15	1,401 21
Students, receipts from.....	43	5,271 65		Fertilizer supervision, analyses, &c	24	1,202 25
Boarders, not students, ditto.....	44	1,094 10		Salaries of Professors	27	10,725 00
Farm, cash receipts.....	17	265 00		Lecturers and Special Instruction	22	951 54
All other sources.....	49	238 62		Mechanic Arts department.....	18	1,213 24
				Eastern Branch, at Princess Anne.....	41	1,902 54
				Equipment, or "facilities for instruction"	31	7,313 33
				Farm, cash outlay.....	17	204 14
				Domestic Department,—cash outlay.....	5	6,796 37
				Sundries,—rebates to students, incidents, &c	32	374 56
				Balance in cash, carried to next year's account	13,945 35	
Total.....			\$51,319 18	Total.....		\$51,319 18

We, the undersigned, duly appointed Auditors for the Corporation, do hereby certify that we have examined the books and accounts of Dr. Jos. R. Owens, Treasurer of the Maryland Agricultural College, for the fiscal year ending August 31st, 1891,—that we have found the same correct, and showing receipts and disbursements as specified in the above exhibit, for all of which disbursements proper vouchers are on file,—and that we find a balance of cash unexpended, of \$13,945.35, which is to be accounted for by the said Treasurer, during the fiscal year beginning September 1st, 1891.

Signed : CHAS. A. WELLS, } *Auditing Committee*
ALLEN DONGE, } *Board of Trustees.*

I hereby certify that the foregoing is a true transcript from the books of account of the Maryland Agricultural College as made in December, 1891.

Signed :

Jos. R. OWENS, *Registrar and Treasurer.*

5

THE FACULTY.

HENRY E. ALVORD, C. E.

President and Professor of Agriculture.

THOMAS A. GATCH, A. M.

*Professor of English Language and Literature,
and Vice-President.*

THOMAS L. BRUNK, B. Sc.

Professor of Botany and Horticulture.

EDWIN W. DORAN, PH. D.,

Professor of Zoology and Comparative Anatomy.

MILTON WHITNEY, M. Sc.

Professor of Geology and Soil Physics.

HENRY B. McDONNELL, M. D.

Professor of Agricultural Chemistry.

JOHN D. HIRD, A. M.

Professor of General Chemistry, and Instructor in French.

WILLIAM H. ZIMMERMAN, A. M.

Professor of Physics, and Instructor in German.

RICHARD H. ALVEY, JR., A. B.

Professor of History, Political Economy, and Latin.

JOHN S. GRISARD, 2nd Lieut. U. S. Army.

*Professor of Military Science and Tactics,
and Acting Professor of Mathematics and Drawing.*

A. PEYTON WORKS,

Assistant Professor of Mathematics, and Instructor in Elocution.

JOS. R. OWENS, M. D.,

Registrar and Treasurer, and Secretary of the Faculty.

SPECIAL INSTRUCTORS.

ALBERT I. HAYWARD, B. Sc.,
Instructor in Agriculture.

CHARLES E. STRAUGHN,
Instructor in Wood-Working.

ERNEST H. BRINKLEY,
Instructor in Bench Metal-Working.

THEODORE P. ENGLE,
Instructor in Forging and Smithing.

JUL. C. WOLFE, A. M.
Instructor in Vocal and Instrumental Music.

LECTURERS.

F. L. KILBORNE, V. S.
U. S. Bureau of Animal Industry.
Lecturer on Injuries and Diseases of Domestic Animals.

GEO. P. MERRILL, M. S.
Dept. of Lithology, U. S. National Museum.
Lecturer on Building Stones and Useful Metals.

WALTER B. BARROWS, B. S.
Division of Economic Ornithology, Dept. of Agriculture.
Lecturer on the Birds of Maryland, Useful and Injurious.

CORYDON P. CRONK, M. D.
Meteorologist, Maryland State Weather Service.
Lecturer on the Weather in its Relations to Farming.

MAJ. WM. S. KING,
U. S. Dept. of Agriculture.
Lecturer on Agricultural Seeds, and Country Roads.

PROF. E. B. PRETTYMAN, A. M.
Secretary Maryland State Board of Education.
Lecturer on the Public School System of Maryland.

REV. THEO. C. GAMBRILL, D. D.
Lecturer on Maryland in Colonial Times.

JOHN M. GREGORY, LL. D.
Ex-President Illinois Industrial University.
Lecturer on Social and Economic Questions of the Day.

Students Enrolled during the year of 1891.

Name.	Residence.
ALVEY, CHARLES.....	<i>Hagerstown, Washington Co.</i>
ANNAN, DANIEL, JR.....	<i>Cumberland, Allegany Co.</i>
AUSHERMAN, CLEMENT COLFAX.....	<i>Middletown, Frederick Co.</i>
BANNON, JOSEPH GEORGE.....	<i>Jessup's, Anne Arundel Co.</i>
BESLEY, FREDERICK WILSON.....	<i>Ash Grove, Fairfax Co., Va.</i>
BEST, HEZEKIAH.....	<i>South River, Anne Arundel Co.</i>
BOMBERGER, FRANKLIN BYERS.....	<i>Williamsport, Washington Co.</i>
BOWEN, RUFUS HAMILTON.....	<i>Prince Frederick, Calvert Co.</i>
BRANCH, CHARLES.....	<i>Ellicott City, Howard Co.</i>
BROOKS, JOHN DOSHER.....	<i>Brookland, D. C.</i>
BROWN, ARTHUR SIDNEY.....	<i>Lakeland, Prince George's Co.</i>
BUCKLEY, JOHN SUTHERLAND.....	<i>Mt. Washington, Baltimore Co.</i>
BUCKLEY, SAMUEL SUTHERLAND.....	<i>Baltimore City.</i>
CALVERT, GEORGE HENRY.....	<i>College Park, Prince George's Co.</i>
CAIRNES, CHARLES WILLIAM.....	<i>Jarrettsville, Harford Co.</i>
CASHELL, EDGAR HILL.....	<i>Redland, Montgomery Co.</i>
CHEW, FRANK.....	<i>Easton, Talbot Co.</i>
CHILDS, NATHAN.....	<i>Highlands, Howard Co.</i>
CHISWELL, BENJAMIN MAURICE.....	<i>Dickerson, Montgomery Co.</i>
CHURCH, EDGAR.....	<i>College Park, Prince George's Co.</i>
CHURCH, IRWIN.....	<i>College Park, Prince George's Co.</i>
CONLEY, CHARLES HENRY.....	<i>Fairland, Montgomery Co.</i>
CLAGETT, HENRY GUYGER.....	<i>Upper Marlboro, P. G. Co.</i>
CLARKE, CHARLES GRAY.....	<i>Brooklyn, Anne Arundel Co.</i>
CRAPSTER, WILLIAM BRUCE.....	<i>Taneytown, Carroll Co.</i>
CROSIER, WALTER HARRY.....	<i>Suitland, Prince George's Co.</i>
DENT, HOWARD MARTIN.....	<i>Bryantown, Charles Co.</i>
DUVALL, ROBERT LEE.....	<i>Laurel, Prince George's Co.</i>
EVERSFIELD, DONALD.....	<i>College Park, Prince George's Co.</i>
FORAN, THOMAS EDWARD.....	<i>Port Deposit, Cecil Co.</i>
FOSS, ALLISON ARCHER.....	<i>Washington, D. C.</i>
FOXWELL, GILBERT MARSHALL.....	<i>Laurel, Prince George's Co.</i>
GAMBRILL, STEPHEN WARFIELD.....	<i>Laurel, Prince George's Co.</i>
GRAFF, GUSTAVUS YEWELL.....	<i>Derwood, Montgomery Co.</i>
GRAHAM, HARRY REMBERT.....	<i>Ingleside, Queen Anne Co.</i>
GROVE, EUGENE ASHBY.....	<i>Lime Kiln, Frederick Co.</i>

Students Enrolled during the year of 1891—continued.

Name.	Residence.
HABERCOM, CARL.....	Hyattsville, Prince George's Co.
HABERCOM, OTTO.....	Hyattsville, Prince George's Co.
HARR, EDWARD OLIVER.....	Forest Glen, Montgomery Co.
HOBLITZELL, FRANK WEIDERMAN.....	Myersdale, Penna.
HOLZAPFEL, HARRY.....	Hagerstown, Washington Co.
HOPKINS, EDWIN DEVALL.....	Bristol, Anne Arundel Co.
JOHNSON, EDWARD DARLINGTON.....	College Park, Prince George's Co.
JONES, HENRY CLAUDE.....	Pocomoke City, Worcester Co.
JUSTICE, JAMES.....	Washington, D. C.
KELLER, JOHN FLETCHER.....	Buckeystown, Frederick Co.
KEMP, DAVID CHESTER	Frederick, Frederick Co.
KEY, SOTHORON.....	Leonardtown, St. Mary's Co.
LANGLEY, JAMES CLARENCE.....	Scotland, St. Mary's Co.
LATIMER, JAMES BRAWNER.....	Baltimore City, Maryland.
LAWSON, JOHN WILLIAM.....	Urbana, Frederick Co.
MANNING, JAMES RUSSELL.....	Branchville, Prince George's Co.
MARDEN, JESSE, JR.....	Baltimore City, Maryland.
McCANDLISH, UPTON LINDSAY.....	Westernport, Allegany Co.
McDONNELL, CURTIS CRISS.....	Florence, Pennsylvania.
MCDONALD, THOMAS BENTON.....	Potomac, Montgomery Co.
MOSS, WILLIAM HAMILTON.....	Annapolis, Anne Arundel Co.
NOYES, FRANK BANNING.....	Port Deposit, Cecil Co.
PENN, SU.....	Seoul, Corea.
PROUGH, PEARRE CHOATE.....	Freedom, Carroll Co.
PUE, RICHARD RIDGLEY.....	Highlands, Howard Co.
RAY, GORDON GOLDSMITH.....	Forest Glen, Montgomery Co.
RAY, JAMES ENOS, JR.....	_____, Prince George's Co.
ROLLINS, SHERMAN TECUMSEH.....	Washington, D. C.
RUDE, WALTER CLIFFORD.....	Forestville, Prince George's Co.
SANCHE, MARC.....	Washington, D. C.
SEIBERT, WALTER STEWART.....	Clear Spring, Washington, Co.
SHERMAN, HENRY CLAPP.....	Ash Grove, Fairfax Co., Va.
SILVER, DAVID H.....	Glenville, Harford Co.
SILVER, WILLIAM SCOTT.....	Lapidum, Harford Co.
SKINNER, WILLIAM WOOLFORD.....	Cambridge, Dorchester Co.
STEWART, GEORGE BINNIX.....	Seabrook, Prince George's Co.
SUDLER, MERVIN TUBMAN.....	Westover, Somerset Co.

Students Enrolled during the year of 1891—concluded.

Name.	Residence.
TIMANUS, JOHN JACOB.....	<i>Powhatan, Baltimore Co.</i>
TOWERS, ALBERT GARY.....	<i>Denton, Caroline Co.</i>
VERNAY, ERNEST HAMPTON.....	<i>Sykesville, Carroll Co.</i>
VEITCH, FLETCHER PEARRE.....	<i>Laytonsville, Montgomery Co.</i>
WADE, JOHN HERBERT.....	<i>Boonsboro, Washington Co.</i>
WEIMER, CLAY HOLLOWAY.....	<i>Cumberland, Allegany Co.</i>
WILLIAMS, FRANK RAYMOND.....	<i>Washington, D. C.</i>
WORTHINGTON, ARTHUR BRASHEARS.	<i>Frederick, Frederick Co.</i>
WRIGHT, WILLIAM WASHINGTON....	<i>Riverton, Wicomico Co.</i>

SUMMARY, BY COUNTIES AND STATES.

Allegany.....	3	Howard.....	3
Anne Arundel.....	5	Montgomery.....	8
Baltimore.....	3	Prince George's.....	16
Calvert.....	1	Queen Anne's.....	1
Carroll.....	3	Saint Mary's.....	2
Caroline.....	1	Somerset.....	1
Cecil.....	2	Talbot.....	1
Charles.....	8	Washington.....	5
Dorchester.....	1	Wicomico.....	1
Frederick.....	6	Worcester.....	1
Harford.....	3	Baltimore City.....	3
 MARYLAND	 71		
DIST. COLUMBIA.....	6		
VIRGINIA.....	2		
PENNSYLVANIA.....	2		
COREA.....	1		
 Total.....	 82		

GRADUATES OF 1890.

RICHARD C. M. CALVERT, B. S.
WILLIAM SCOTT KEECH, JR., B. S.
CHARLES CHENEY MANNING, B. S.
EDWARD GRANT NILES, B. S.
ROBERT LEE RUSSELL, B. S.
CLARENCE ELDER SOLES, B. S.

GRADUATES OF 1891.

CHARLES BRANCH, B. S.
JAMES CLARENCE LANGLEY, B. S.
JAMES BRAWNER LATIMER, B. S.
SU PENN, B. S.
FLETCHER PEARRE VEITCH, B. S.

PRIZES AWARDED.

*The Agricultural Prize was awarded,
For 1890, to ROBERT LEE RUSSELL, of Washington, D. C.
For 1891, to JAMES BRAWNER LATIMER, of Calvert Co., Md.*

HONORABLE MENTION FOR SPECIAL PROFICIENCY AND MERIT IN THE
MILITARY DEPARTMENT.

1890,—CLARENCE ELDER SOLES, of McKeesport, Penn.
1891,—FLETCHER PEARRE VEITCH, of Montgomery Co., Md.

Mentioned, in this connection, in the Annual Register of the United States Army.

COURSE OF STUDY.
FRESHMAN YEAR.

Agriculture—History, breeding, and care of farm stock
Natural History—Climatology and Physical Geography.
English—Analysis and construction of language.
French. { One of these is required; the student may
Latin. { choose which, but cannot take both.
Mathematics—Arithmetic reviewed; Algebra.
Book-keeping—With business forms and farm accounts.
Drawing—Free-hand, outlines.

SOPHOMORE YEAR.

Horticulture—Lectures and practical exercises.
Natural History—Botany, and Zoology.
Chemistry—Begun and continued through the year.
English—History of English language and literature.
History—Ancient and Modern.
French. { Second year of both.
Latin. { Only one can be taken.
Mathematics—Algebra completed; Geometry.
Drawing—Free-hand and Instrumental.
Shop-practice—Wood-working.

JUNIOR YEAR.

Agriculture and Horticulture—Tools, Gardening and Crops.
Natural History—Geology and Soils; Entomology.
Chemistry—Laboratory Practice and Organic Chemistry.
Physics—Throughout the year.
English—Logic, Rhetoric and literary exercises.
German—Begun. { One must be taken and only one.
Latin—Third year. { The student may choose.
Mathematics—Trigonometry, Mensuration and Surveying.
Drawing—Geometrical and Mechanical.
Shop-practice—Metal-working.

SENIOR YEAR.

I. The student is required to take the following:
Agriculture and Horticulture—Manures and Fertilizers; Farm Mechanics; Forage and Feeding; Dairying; Plant Diseases; Insecticides and Fungicides; Origin
Natural Science—Biology, Chemistry and Physics. [of Varieties.
History, &c.—Constitutional History and Political Economy.
English—Reviews, Rhetorical exercises and Debates.
Drawing—Perspective and Topographical.
Lectures—On various subjects, by Specialists.

II. The student is also required to select, with the advice and approval of the Faculty, a fixed amount of advanced work, from these branches, viz:—

Botany.—*Chemistry*.—*Comparative Anatomy*.—*Physics*.—*Elementary Civil Engineering*.—*English*.—*German*.—*Latin*.

1. *Military Drill*, about four times per week. } Required of all students
 2. *Periodical Exercises* in Composition and Elocution. } throughout the course.

REPORT OF THE EASTERN BRANCH.

PRINCESS ANNE, SOMERSET Co., MD.,

December 28th, 1891.

MAJ. HENRY E. ALVORD,

President, Maryland Agricultural College.

DEAR SIR:—In accordance with instructions, I herewith present the annual report of the Eastern Branch of the Maryland Agricultural College, for the year 1891, during which it has been under my charge.

This has been one of the most successful years in the history of this institution, generally known as the Normal and Industrial Academy of Morgan College, of Baltimore. The enrollment of students has increased and there are marked signs of improvement in the standard of scholarship and discipline. The range of instruction has been enlarged and special attention given to providing a full English course. The branches taught are as follows:— Arithmetic, Algebra, Geometry, Geography, Physical Geography, Physiology, Grammar, History, Logic, Rhetoric, Elocution, Orthography, Composition, Book-keeping, Drawing and Music. The Latin and Greek languages are taught, if desired. Practical instruction has been given to the males, in Agriculture, Blacksmithing, Brick-laying, Carpentry, Shoe-making and Tailoring, and the females have been trained in Cooking, Dress-making, Laundry work, and the general proprieties of House-keeping.

None of the industrial departments are yet fully equipped, but several hundred dollars have been expended for this purpose during the year, and the most essential tools and implements have been procured, which, with the materials to meet present demands, has enabled the instruction to proceed as stated below. The greatest hindrance to progress in the industrial departments, arises from the want of suitable buildings for working rooms for both the males and females. Through the generosity of a few friends, who supplied the materials, and by the labor of the students themselves, mainly, a small shop has been put up lately, which will furnish very temporary accommodations to four of the male

departments. The female industries have no quarters available except the very limited rooms of the dwelling occupied by the Principal and his family.

〔The total enrollment for the year has been 85,—of whom 54 have been males and 31 females. Ages range from 8 years to 33 years, averaging 18 years for males and 17 for females. There have been 46 males and 24 females, who have attended during portions of the year, who were over fifteen years of age and capable of receiving instruction in some of the industries. In all, 32 males have received such instruction during the year, and 20 females have been taught domestic arts. The average attendance has been 20 weeks each for the males and 18 weeks for the females; the school years consists of 36 weeks. There are now in attendance 42 regular boarders, while 14 other pupils live in the vicinity and attend daily.〕

Agriculture:—Twenty (20) young men have been instructed practically in this department, by the resident farmer, and with very satisfactory results. The farm, lately added to the property, contains one hundred and twenty-one acres. It has this year produced enough long-forage and nearly enough grain, for home use. Some experimental work has been done, in the use of commercial fertilizers as applied to potato growing. Fair results have been secured in raising small fruits and vegetables. The land and buildings have been improved somewhat during the year, but fences, drainage and additional buildings, are badly needed. There have been purchased for the use of this department,—horses, cows, hogs, wagons, grain-drill, mowing machine, plows, harrows, cultivators and hand tools.〕

Blacksmithing:—Six (6) young men are being taught in this department and their instructor reports interest and progress. This shop has been fitted with a set forge, blower, anvils, vises, post-drill, tire-bender, and the various hand-tools necessary for smithing and shoeing.〕

〔*Brick-laying:*—A class of five (5) is being trained in this department, and the instructor states that he never taught apprentices with more satisfaction. Progress marks every lesson. This department is well provided with trowels, hammers, squares, levels, plumbs, lines, shovels, hoes, and a fair supply of materials.〕

Carpentry:—In this department five (5) of the pupils are engaged and their instructor reports that they take readily to the use of tools, and that very good progress is being made. A very good assortment of tools has been procured for the carpenters' shop, but additions will soon be needed.

Shoe-making:—Nine (9) young men are being instructed in this department, but owing to the illness and absence of the teacher, progress has not been so satisfactory as in those trades where the teaching has been regular. All has been accomplished which could be expected. The oldest and most proficient pupil leads the class, and a good deal of repairing and work of practical utility has been done. Tools and material are provided for both repairing and new work.

Tailoring:—This department has been supplied with tables, made by the students, and with stove, irons, sewing-machine and all needed tools and materials for cutting, making and finishing male garments. Seven (7) pupils are learning this trade, and the instructor says he never saw apprentices learn faster. Here, too, considerable work has already been done, of practical value.

Household Department:—Most of the young women receive practical instruction in all the departments of the household. But although appliances have been obtained, for which room could be found, the accommodations are so insufficient as to render the results far from satisfactory. Little advance can be expected, and no properly systematized instruction, until the use of a suitable building can be secured.

The names of all the teachers are attached. All the instructors in trades are residents of Princess Anne, and come to the Academy on stated days. The other teachers and the farmer reside on the premises. The school year begins September 30th, and with a recess of two weeks at Christmas and one week the last of March, ends of the 2nd of June, which is Anniversary Day.

Very respectfully submitted,

Signed:

B. O. BIRD,

Principal and Superintendent.

OFFICERS OF THE EASTERN BRANCH.

B. O. BIRD, *Principal,*
and Superintendent of the Industrial Departments.

MRS. PORTIA E. BIRD, *English Teacher,*
and Superintendent of the Household Department.

J. THOMAS STANFORD, *Teacher of English*
and Classical Branches and Normal Work.

JOSEPH N. GIBBONS,
Instructor in Black-smithing.

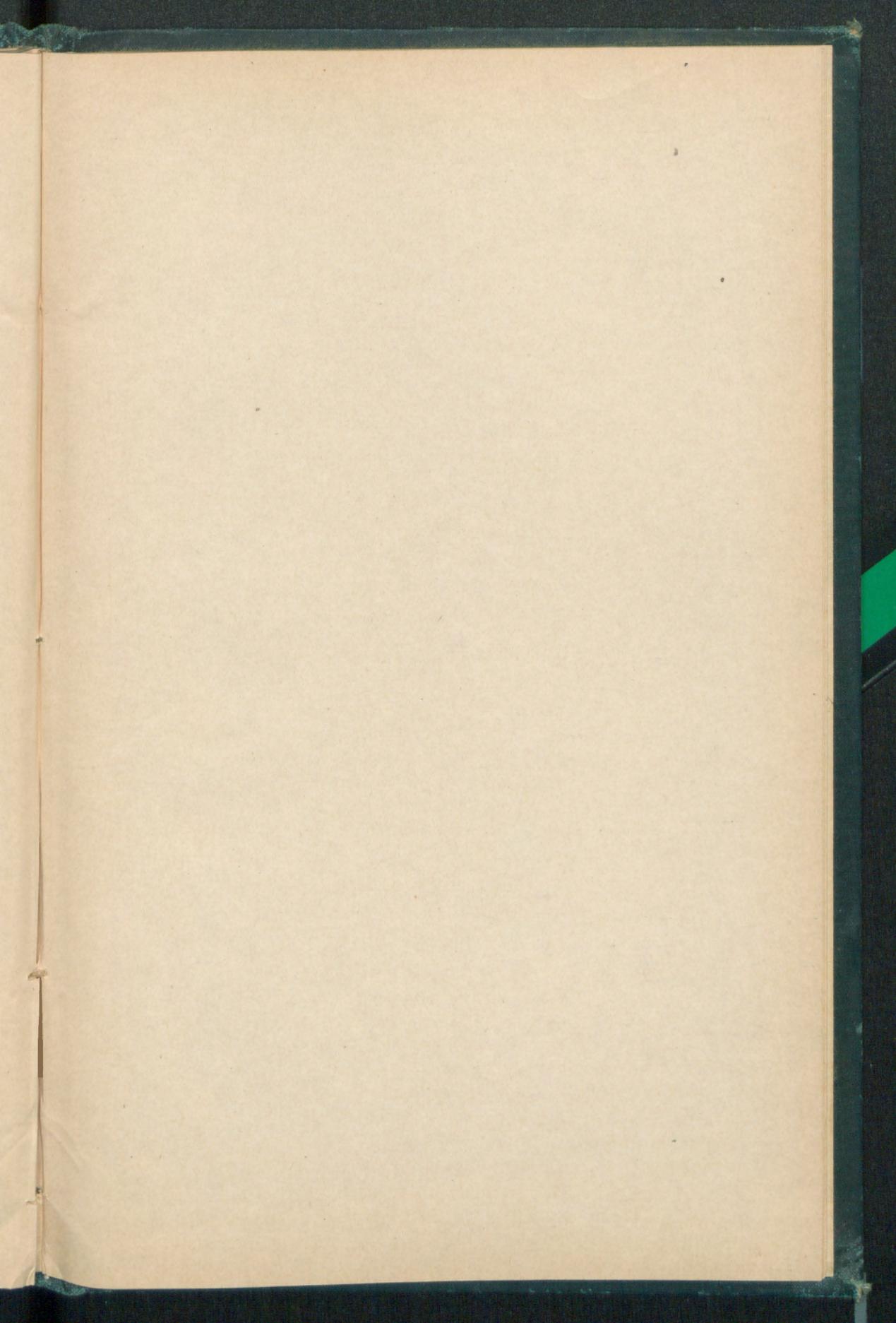
GEORGE E. LLOYD,
Instructor in Brick-laying.

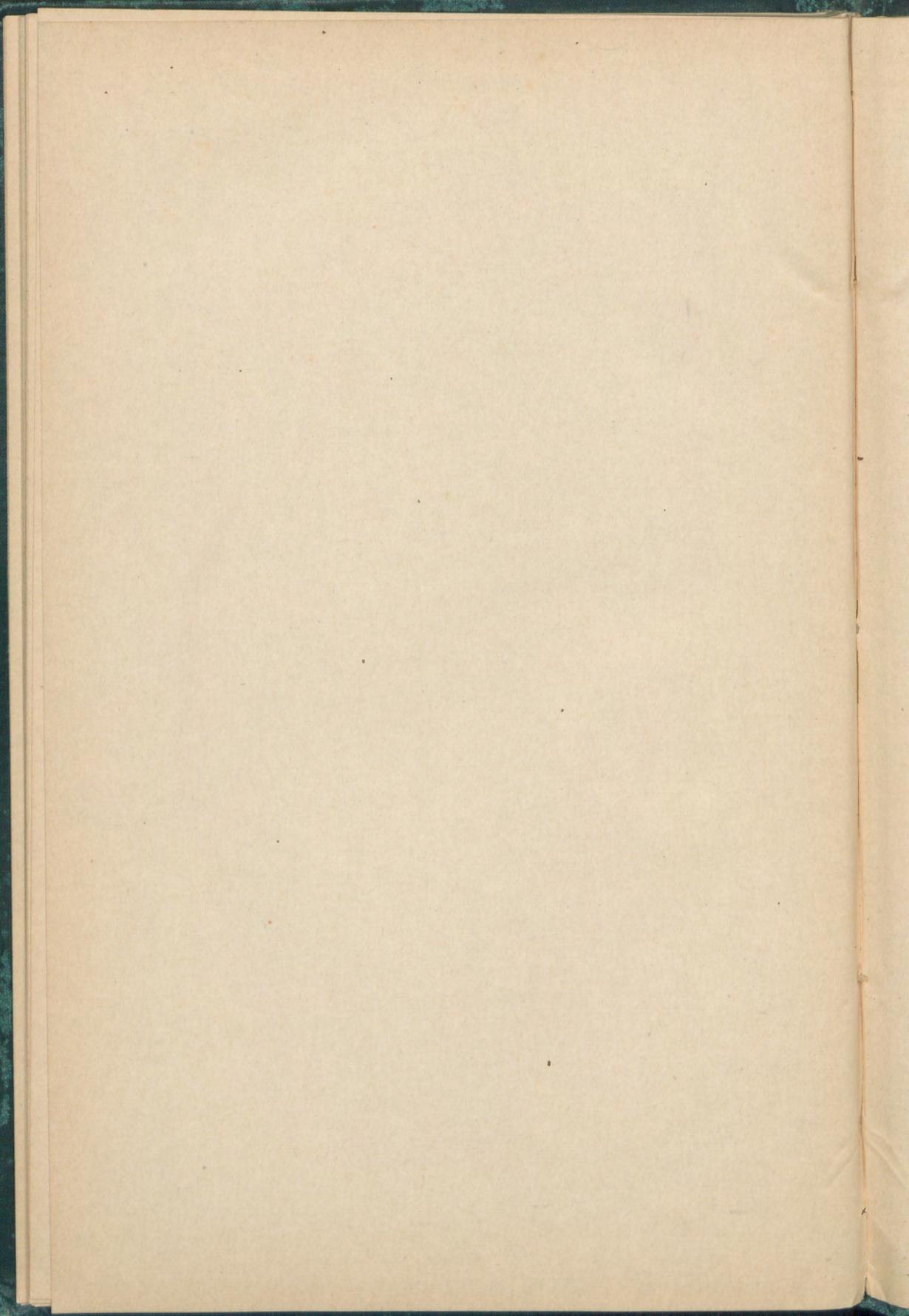
CHARLES H. HAYMAN,
Instructor in Carpentry.

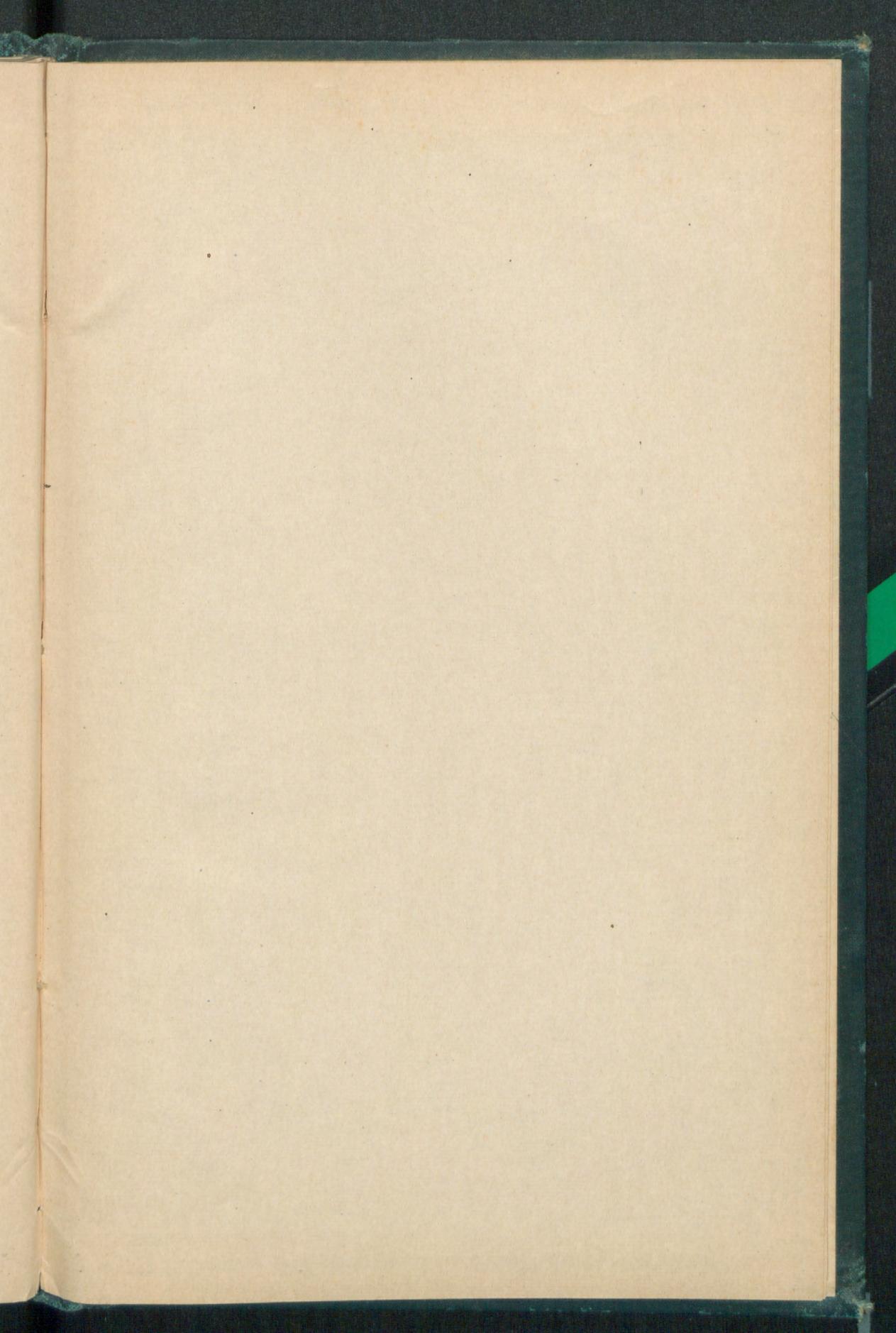
JOHN W. GILLETT,
Instructor in Shoe-making.

WILLIAM B. JONES,
Instructor in Tailoring.

CHARLES H. HAWKINS, 1
Farmer.







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